CONTENTS

Vol. 11, No. 1 January 1973

Geometric Programming with Signomials, *R. J. Duffin and E. L. Peterson* 3
An Iterative Method for Generalized Nonlinear Complementarity Problems, *G. J. Habetler and A. L. Price* 36
Cutting Planes for Programs with Disjunctive Constraints, *G. Owen* 49
Optimal Inputs and Sensitivities for Parameter Estimation, *R. E. Kalaba and K. Spingarn* 56
On Optimal Modeling of Systems, *R. J. P. De Figueiredo, A. Caprihan, and A. N. Netravali* 68
Application of the Epsilon Technique to the Identification of Distributed-Parameter Systems, *G. Di Pillo and L. Grippo* . . . 84
Optimization of Functional Differential Systems, *J. K. Aggarwal and D. H. Eller* 100

Vol. 11, No. 2 February 1973

Optimal Use of a Self-Regenerating Controller that Decays with Use, *G. H. Lawden* 121
On Controllability of Systems of the Form $\dot{x} = A(t)x + g(t, u)$, *J. P. Dauer* 132
A Proof of the Pontryagin Maximum Principle for Initial-Value Problems, *R. J. Hartberger* 139
A Generalized Rayleigh Quotient for Eigenvalue Problems Nonlinear in the Parameter, *M. A. Golberg* 146
Solution of Certain Nonlinear Programs Involving r-Convex Functions, *M. Avriel* 159
Quadratically Convergent Algorithms and One-Dimensional Search Schemes, *H. Y. Huang and J. P. Chambliss* 175
General Theory of Optimal Trajectory for Rocket Flight in a Resisting Medium, *N. X. Vinh* 189
Galerkin Solutions of Stiff Two-Point Boundary-Value Problems, *C. P. Neuman and F. G. Casasayas* 203
Book Notices 213
Research Reports 215
Announcement 216

Vol. 11, No. 3 March 1973

Editorial: In Memory of L. W. Neustadt, *N. E. Nahi* 217
An Approach to Nonlinear Programming, *D. G. Luenberger* . . 219
Discretizing Dynamic Programs, *B. L. Fox* 228
Necessary Optimality Criteria in Mathematical Programming in Normed Linear Spaces, *M. S. Bazaraa and J. J. Goode* 235
A Geometrical Proof of the Maximum Principle for Systems Represented by Difference-Differential Equations, *M. A. Connor* 245
A New Necessary Condition for Optimality of Systems with Time Delay, *M. A. Soliman* 249
A Ritz Method for an Optimal Control Problem, *M. H. Schultz* 255
On Existence of Optimal Controls, *A. M. Steinberg and H. L. Stalford* 266
Initial-Value Problems in Potential Theory, *E. Angel, A. Jain, and R. Kalaba* 274
Nonzero-Sum Differential Games with Bargaining Solutions, *P. T. Liu* 284
Intermediate-Thrust Arcs and Their Optimality in a Central, Time-Invariant Force Field, *A. R. Archenti and N. X. Vinh* . . 293
Duality Theorems for a Class of Nonconvex Programming Problems, *O. Rani and R. N. Kaul* 305
T-Controllable Domains of the Soft Duffing Oscillator, *M. J. Davies and I. Grisogono-Holstein* 309
On the Terminal Control Problem, *A. M. Steinberg and K. Shmueli* 313

Vol. 11, No. 4 April 1973

Editor's Note. 321
Iterative Methods for Solving Linear Equations, *M. R. Hestenes* 323
The Solution of Linear Equations by Minimization, *M. R. Hestenes and M. L. Stein* 335
Duality Relationships for a Nonlinear Version of the Generalized Neyman–Pearson Problem, *H. D. Meeks and R. L. Francis* . . . 360
An Existence Theorem for a Fractional Control Problem, *S. K. Bhatt* 379
A Perturbation Treatment for Optimal Slightly Nonlinear Systems with Linear Control and Quadratic Criteria, *A. A. Kamel and S. D. Hassan* 386
Collective Bargaining: A Differential Game, *G. Leitmann* 405
Optimum Shape of Columns with General Conservative End Loading, *M. Farshad and I. Tadjbakhsh* 413

Optimal Plastic Design for Partially Preassigned Strength Distribution, *G. I. N. Rozvany* 421
A Simple Example on Informativeness and Performance, *Y. C. Ho and I. Blau* 437

Vol. 11, No. 5 May 1973

Chattering Arcs and Chattering Controls, *C. Marchal* 441
Stability of Huang's Update for the Conjugate Gradient Method, *E. Spedicato* 469
Fractured Solutions in the Calculus of Variations, *G. T. McAllister and S. M. Rohde* 480
On the Existence of an Optimal Solution of the Epsilon Variational Problem, *A. K. Choudhury* 494
An Initial-Value Method for the Determination of Green's Functions, *M. A. Golberg* 506
The Basic Functions b and h for Fredholm Integral Equations with Displacement Kernels, *H. Kagiwada and R. Kalaba* 517
On the Stackelberg Strategy in Nonzero-Sum Games, *M. Simaan and J. B. Cruz, Jr.* 533
On Conditions for Optimality in Least pth Approximation with $p \rightarrow \infty$, *J. W. Bandler and C. Charalambous* 556

Vol. 11, No. 6 June 1973

An Outline of Linear Programming, *G. Owen* 567
On the Uniqueness of Search Directions in Variable-Metric Algorithms, *N. Adachi* 590
Lower Bounds on the Cost Functional for Systems Governed by Partial Differential Equations, *Y. Yavin* 605
Additional Aspects of the Stackelberg Strategy in Nonzero-Sum Games, *M. Simaan and J. B. Cruz, Jr.* 613
Algorithms for Discounted Stochastic Games, *S. S. Rao, R. Chandrasekaran, and K. P. K. Nair* 627
Optimum Design of Vibrating Cantilevers, *B. L. Karihaloo and F. I. Niordson* 638
On the Relative Leadership Property of Stackelberg Strategies, *T. Basar* 655
On Optimal Design of Vibrating Structures, *R. M. Brach* . . . 662
Subject Index to Volume 11 669
Author Index to Volume 11 671

Subject Index to Volume 11

Aerospace engineering, 189, 293
Approximation of functions, 556
Approximation theory, 556, 605
Astrodynamics, 189, 293
Athletics, 121

Bargaining solutions, 284, 405
Beam design, 413, 421, 638, 662
Boundary-value problems, 203, 274, 386, 506
Bounds on cost functionals, 605

Calculus of variations, applications, 121, 189, 255, 293, 309, 386, 413, 421, 480, 605, 638, 662
Calculus of variations, theory, 132, 139, 235, 245, 249, 266, 313, 379, 441, 494
Chattering phenomena, 441
Closed-loop controls, 613
Column design, 413
Complementarity problems, 36
Computing methods, 175, 203, 219, 228, 255, 323, 335, 469, 556, 567, 590
Conjugate-gradient methods, 175, 219, 323, 335, 469, 590
Control theory, applications, 121, 189, 255, 293, 309, 386, 413, 421, 480, 605, 638, 662
Control theory, theory, 132, 139, 235, 245, 249, 266, 313, 379, 441, 494
Controllability, 132, 309, 313
Convexity, 159
Cutting plane methods, 49

Decaying control, 121
Differential-difference equations, 245
Differential equations, 203, 309
Differential games, 284, 405, 533, 613, 655
Discounted payoff, 627
Discounted stochastic games, 627
Disjunctive constraints, 49
Distributed-parameter systems, 84, 605
Duality theory, 305, 360, 567
Dynamic programming, 228, 613

Economics, 284, 405
Eigenvalue problems, 146, 638
Elastic stability, 413
Epsilon technique, 84, 494
Estimation problems, 56, 84
Existence theorems, 266, 379

Flight mechanics, 189, 293
Fredholm equations, 517
Function minimization, 3, 49, 159. 175, 219, 305, 323, 335, 469, 567, 590
Functional analysis, 100, 255
Functional differential equations, 100

Galerkin procedure, 203
Game theory, 284, 405, 437, 533, 567, 613, 627, 655
Geometric programming, 3
Gradient methods, 175, 219, 323, 335, 469, 556, 590

© 1973 Plenum Publishing Corporation, 227 West 17th Street, New York, N.Y. 10011.

Green's functions, 506
Growth conditions, 132

Hereditary processes, 245

Identification problems, 56, 84
Information theory, 437
Initial-value problems, 139, 274, 506
Integral equations, 146, 517
Invariant imbedding, 146, 506

Lie transforms, 386
Linear programming, 567
Linear-quadratic games, 533

Mathematical programming, 3, 49, 159, 175, 219, 235, 305, 323, 335, 360, 469, 567, 590
Maximum principle, 139, 245
Minimax approximation, 556
Minimum-weight design, 638, 662
Modeling, 68

Nash equilibria, 655
Neyman–Pearson problem, 360
Nonconvex programming, 159, 175, 228, 305
Nonlinear complementarity problems, 36
Nonlinear programming, 159, 175, 219, 305, 323, 335, 360, 469, 590
Nonzero-sum games, 405, 437, 533, 613, 655
Normed linear spaces, 235
Numerical methods, 175, 203, 219, 228, 255, 323, 335, 469, 556, 567, 590

Operations research, 228
Orbital mechanics, 189, 293

Parameter estimation, 56
Perturbation methods, 386
Plastic design, 421
Potential theory, 274
Pursuit–evasion problems, 533

Quadratically convergent algorithms, 175, 323, 335, 469, 590

Rayleigh quotient, 146
Relaxed control, 266, 313
Ritz method, 255

Search techniques, 175
Signomial functions, 3
Singular control problems, 249, 441
Spline functions, 255
Stackelberg strategies, 533, 613, 655
Stiff equations, 203
Stochastic games, 437, 627
Structural design, 413, 421, 638, 662
Suboptimal control, 266, 313
Survey papers, 441, 567

Terminal control, 313
Time-delay systems, 245, 249
Time optimal control, 121, 313
Two-point boundary-value problems, 203, 386

Variable-metric methods, 175, 469, 590

Zero-sum games, 405

Author Index to Volume 11

Adachi, N., 590
Aggarwal, J. K., 100
Angel, E., 274
Archenti, A. R., 293
Avriel, M., 159

Bandler, J. W., 556
Basar, T., 655
Bazaraa, M. S., 235
Bhatt, S. K., 379
Blau, I., 437
Brach, R. M., 662

Caprihan, A., 68
Casasayas, F. G., 203
Chambliss, J. P., 175
Chandrasekaran, R., 627
Charalambous, C., 556
Choudhury, A. K., 494
Connor, M. A., 245
Cruz, J. B., Jr., 533, 613

Dauer, J. P., 132
Davies, M. J., 309
De Figueiredo, R. J. P., 68
Di Pillo, G., 84
Duffin, R. J., 3

Eller, D. H., 100

Farshad, M., 413
Fox, B. L., 228
Francis, R. L., 360

Golberg, M. A., 146, 506
Goode, J. J., 235
Grippo, L., 84
Grisogono-Holstein, I., 309

Habetler, G. J., 36
Hartberger, R. J., 139
Hassan, S. D., 386
Hestenes, M. R., 323, 335
Ho, Y. C., 437
Huang, H. Y., 175

Jain, A., 274

Kagiwada, H., 517
Kalaba, R. E., 56, 274, 517
Kamel, A. A., 386
Karihaloo, B. L., 638
Kaul, R. N., 305

Lawden, G. H., 121
Leitmann, G., 405
Liu, P. T., 284
Luenberger, D. G., 219

Marchal, C., 441
McAllister, G. T., 480
Meeks, H. D., 360

Nahi, N. E., 217
Nair, K. P. K., 627

© 1973 Plenum Publishing Corporation, 227 West 17th Street, New York, N.Y. 10011.

Netravali, A. N., 68
Neuman, C. P., 203
Niordson, F. I., 638

Owen, G., 49, 567

Peterson, E. L., 3
Price, A. L., 36

Rani, O., 305
Rao, S. S., 627
Rohde, S. M., 480
Rozvany, G. I. N., 421

Schultz, M. H., 255
Shmueli, K., 313
Simaan, M., 533, 613
Soliman, M. A., 249
Spedicato, E., 469
Spingarn, K., 56
Stalford, H. L., 266
Stein, M. L., 335
Steinberg, A. M., 266, 313

Tadjbaksh, O., 413

Vinh, N. X., 189, 293

Yavin, Y., 605

Printed in Belgium

CONTENTS

Vol. 12, No. 1 July 1973

Interval Arithmetic for Guaranteed Bounds in Linear Programming, *N. F. Stewart* 1
Some Relationships Between Green's Functions and Invariant Imbedding, *C. W. Maynard and M. R. Scott* 6
On Cutoff Optimization Methods in Infinite-Dimensional Spaces and Applications, *K. C. Kapur* 16
On the Optimal Distribution of Elastic Moduli of a Nonhomogeneous Body, *B. Klosowicz and K. A. Lurie* 32
Control of the Flux of Substrate Entering an Enzymatic Membrane by an Inhibitor Concentration at the Boundary, *J. P. Kernevez* . 43
Pairing Stochastic Processes, *P. Krée* 53
Sequential Gradient-Restoration Algorithm for Optimal Control Problems with Bounded State, *G. R. Hennig and A. Miele* . . . 61
A Lagrangian Property for Homogeneous Programs, *H. J. Greenberg* 99
A Maximum Principle for Neutral Systems Via Balakrishnan's ϵ-Method, *M. A. Connor* 103

Vol. 12, No. 2 August 1973

Absolutely Continuous Constrained Maximizers, *T. Rader* . . . 107
An Elementary Proof of the Duality Theorem of Linear Programming, *R. L. Smith* 129
The Epsilon Variation Method in Two-Point Boundary-Value Problems, *S. M. Roberts and J. S. Shipman* 136
Direct Shooting Method for the Solution of Boundary-Value Problems, *M. R. Mataušek* 152
On Observability and Stability in Infinite-Dimensional Linear Systems, *P. A. Fuhrmann* 173
Min-Max Optimal Control of Systems Approximated by Finite-Dimensional Models: Nonquadratic Cost Functional, *A. Negro* 182
Uniform Approximation of Systems: A Banach Space Approach, *M. Milanese and A. Negro* 203
Stochastic Optimization Problems with Nondifferentiable Cost Functionals, *D. P. Bertsekas* 218

Vol. 12, No. 3 September 1973

Global Convergence for Newton Methods in Mathematical Programming, *J. W. Daniel* 233
Time Optimal Rendezvous of Three Linear Systems, *D. H. Chyung* 242
Single-Person Controlled Diffusions with Discounted Costs, *S. R. Pliska* 248
Delay Differential Systems: Problem of Control with Target in Function Space, *P. Charrier* 256
An Extended Quasilinearization Algorithm, *R. G. Graham and C. T. Leondes* 268
Modified Quasilinearization Algorithm for Optimal Control Problems with Bounded State, *A. Miele, K. H. Well, and J. L. Tietze* 285
A Note on Optimization Using the Augmented Penalty Function, *V. Raghavendra and K. S. P. Rao* 320
A Note on Solutions of Orientor Fields for Periodic Systems, *K. Hannsgen and D. A. Sanchez* 325

Vol. 12, No. 4 October 1973

An Initial-Value Method for Nonlinear Integral Equations, *H. Kagiwada and R. Kalaba* 329
An Initial-Value Method for Integral Operators. II. Complex Eigenfunctions, *R. Kalaba and M. R. Scott* 338
Convergence of an Initial-Value Method for Fredholm Integral Equations, *M. A. Golberg* 344
An Initial-Value Method for the Eigenvalue Problem for Differential Equations with Nonseparated Boundary Conditions, *M. R. Scott* 355
Saddle Points of Hamiltonian Systems in Convex Problems of Lagrange, *R. T. Rockafellar* 367
The Discrete Maximum Principle and the ϵ-Technique, *M. Y. Tarng and L. R. Nardizzi* 391
Control of Second-Order Systems at Large Amplitudes, *E. Cumberbatch* 408
Dynamic Programming and Parallel Computers, *J. Casti, M. Richardson, and R. Larson* 423

Vol. 12, No. 5 November 1973

A Minimax Search Plan for Constrained Optimization Problems, *J. H. Beamer and D. J. Wilde* 439

Computational Schemes of the Davidon–Fletcher–Powell Method in Infinite-Dimensional Space, *K. Oi, H. Sayama, and T. Takamatsu* 447
Extension of a Perturbation Technique for Nonlinear Two-Point Boundary-Value Problems, *S. M. Roberts and J. S. Shipman* . . 459
Anchoring Conditions for the Sequential Gradient-Restoration Algorithm and the Modified Quasilinearization Algorithm for Optimal Control Problems with Bounded State, *H. Y. Huang and A. Esterle* 471
An Optimal Policy for a Fish Harvest, *E. M. Cliff and T. L. Vincent* 485
Optimal Strategies for a Class of Adaptive Search Processes, *W. W. Willman* 497
Upper Bounds for the Fundamental Eigenvalue for a Domain of Unknown Shape, *B. A. Troesch* 512
Research Reports 527

Vol. 12, No. 6 December 1973

A New Approach to Constrained Function Optimization, *K. Mårtensson* 531
The Multiplier Method of Hestenes and Powell Applied to Convex Programming, *R. T. Rockafellar* 555
Convergence of Bounds in Optimization, *A. W. J. Stoddart* . . 563
On the Convergence of Sequential Minimization Algorithms, *R. W. H. Sargent and D. J. Sebastian* 567
Hydrothermal Load Flow Using Functional Analysis, *M. E. El-Hawary and G. S. Christensen* 576
Continuous and Discontinuous Solutions for Optimum Thrust Nozzles of Given Length, *K. G. Guderley, D. Tabak, M. C. Breiter, and O. P. Bhutani*. 588
Research Reports 629
Subject Index to Volume 12 632
Author Index to Volume 12 635

Vol. 12, No. 3 September 1973

Global Convergence for Newton Methods in Mathematical Programming, *J. W. Daniel* 233
Time Optimal Rendezvous of Three Linear Systems, *D. H. Chyung* 242
Single-Person Controlled Diffusions with Discounted Costs, *S. R. Pliska* 248
Delay Differential Systems: Problem of Control with Target in Function Space, *P. Charrier* 256
An Extended Quasilinearization Algorithm, *R. G. Graham and C. T. Leondes* 268
Modified Quasilinearization Algorithm for Optimal Control Problems with Bounded State, *A. Miele, K. H. Well, and J. L. Tietze* 285
A Note on Optimization Using the Augmented Penalty Function, *V. Raghavendra and K. S. P. Rao* 320
A Note on Solutions of Orientor Fields for Periodic Systems, *K. Hannsgen and D. A. Sanchez* 325

Vol. 12, No. 4 October 1973

An Initial-Value Method for Nonlinear Integral Equations, *H. Kagiwada and R. Kalaba* 329
An Initial-Value Method for Integral Operators. II. Complex Eigenfunctions, *R. Kalaba and M. R. Scott* 338
Convergence of an Initial-Value Method for Fredholm Integral Equations, *M. A. Golberg* 344
An Initial-Value Method for the Eigenvalue Problem for Differential Equations with Nonseparated Boundary Conditions, *M. R. Scott* 355
Saddle Points of Hamiltonian Systems in Convex Problems of Lagrange, *R. T. Rockafellar* 367
The Discrete Maximum Principle and the ϵ-Technique, *M. Y. Tarng and L. R. Nardizzi* 391
Control of Second-Order Systems at Large Amplitudes, *E. Cumberbatch* 408
Dynamic Programming and Parallel Computers, *J. Casti, M. Richardson, and R. Larson* 423

Vol. 12, No. 5 November 1973

A Minimax Search Plan for Constrained Optimization Problems, *J. H. Beamer and D. J. Wilde* 439

Computational Schemes of the Davidon–Fletcher–Powell Method in Infinite-Dimensional Space, *K. Oi, H. Sayama, and T. Takamatsu* 447
Extension of a Perturbation Technique for Nonlinear Two-Point Boundary-Value Problems, *S. M. Roberts and J. S. Shipman* . . 459
Anchoring Conditions for the Sequential Gradient-Restoration Algorithm and the Modified Quasilinearization Algorithm for Optimal Control Problems with Bounded State, *H. Y. Huang and A. Esterle* 471
An Optimal Policy for a Fish Harvest, *E. M. Cliff and T. L. Vincent* 485
Optimal Strategies for a Class of Adaptive Search Processes, *W. W. Willman* 497
Upper Bounds for the Fundamental Eigenvalue for a Domain of Unknown Shape, *B. A. Troesch* 512
Research Reports 527

Vol. 12, No. 6 December 1973

A New Approach to Constrained Function Optimization, *K. Mårtensson* 531
The Multiplier Method of Hestenes and Powell Applied to Convex Programming, *R. T. Rockafellar* 555
Convergence of Bounds in Optimization, *A. W. J. Stoddart* . . 563
On the Convergence of Sequential Minimization Algorithms, *R. W. H. Sargent and D. J. Sebastian* 567
Hydrothermal Load Flow Using Functional Analysis, *M. E. El-Hawary and G. S. Christensen* 576
Continuous and Discontinuous Solutions for Optimum Thrust Nozzles of Given Length, *K. G. Guderley, D. Tabak, M. C. Breiter, and O. P. Bhutani*. 588
Research Reports 629
Subject Index to Volume 12 632
Author Index to Volume 12 635

Subject Index to Volume 12

Adaptive control, 497
Aerodynamics, 588
Anchoring conditions, 471
Approximation of systems, 182, 203
Asymptotic methods, 408
Augmented penalty function, 320

Bang–bang phenomena, 256
Biochemistry, 43
Biological systems, 485
Boundary-value problems, 6, 136, 152, 459
Bounded state, 61, 285, 471

Calculus of variations, applications, 588
Calculus of variations, theory, 367, 588
Computing methods, 61, 136, 152, 218, 233, 268, 285, 320, 391, 423, 439, 447, 459, 471, 531, 555, 567
Conjugate-direction methods, 447
Control theory, applications, 32, 43, 61, 103, 152, 242, 256, 285, 447, 471, 485, 497
Control theory, theory, 61, 103, 173, 182, 248, 256, 285, 325, 391, 497
Controllability, 256
Convergence theory, 233
Convex analysis, 367
Convex programming, 99, 107, 218, 555
Cutting plane methods, 16

Delay differential systems, 256
Differential equations, 136, 152, 248, 355, 459
Differential games, 242
Direct optimization, 439
Discounted costs, 248
Discrete maximum principle, 391
Discrete optimization, 439
Duality theory, 129
Duffing's equation, 408
Dynamic programming, 129, 248, 423, 497

Economic growth, 367
Eigenfunctions, 338
Eigenvalues, 355, 512, 563
Elasticity, 32
Electrical systems, 576
Environmental systems, 485
Epsilon method, 103, 391
Epsilon technique, 103, 391
Epsilon variation method, 136
Error analysis, 1
Estimation, 563
Extended quasilinearization methods, 268

Fish harvest, 485
Fluid sloshing frequencies, 512
Fredholm integral equations, 344
Function minimization, 99, 107, 129, 320, 563, 567
Functional analysis, 16, 182, 203, 344, 576
Functional differential equations, 103, 256

Geometric programming, 99
Global convergence, 233

© 1973 Plenum Publishing Corporation, 227 West 17th Street, New York, N.Y. 10011.

Gradient methods, 61, 447, 471
Gradient methods in Hilbert space, 447
Green's functions, 6

Hamiltonian systems, 367
Hilbert spaces, 173
Homogeneous functions, 99
Hydrothermal systems, 576

Identification problems, 203
Imbedding methods, 563
Initial-value methods, 6, 329, 338, 344, 355
Integral equations, 182, 329, 344
Integral operators, 338
Interval arithmetic, 1
Invariant imbedding, 6, 355
Isoperimetric problems, 512

Lagrange problems, 367
Large amplitudes, 408
Linear programming, 1, 129
Linear systems, 173, 242, 256
Load flow, 576

Mathematical programming, 16, 99, 107, 129, 233, 320, 423, 439, 531, 555, 567
Maximum principle, 103, 242
Method of characteristics, 588
Minimax estimation, 203
Minimax problems, 182
Minimum norm, 576
Modeling problems, 203
Modified quasilinearization algorithm, 285, 471
Modified quasilinearization methods, 285
Multiple players, 242
Multiplier functions, 531, 555
Multiplier methods, 320, 531, 555

Newton methods, 233
Nondifferentiable cost functionals, 218
Nonlinear equations, 136, 152, 329, 355, 408, 459
Nonlinear integral equations, 329
Nonlinear programming, 99, 107, 233, 320, 439, 531, 555
Nonlinear systems, 408
Nonseparated boundary conditions, 6, 355
Numerical methods, 43, 61, 136, 152, 233, 268, 285, 320, 344, 391, 423, 439, 447, 459, 471, 531, 555, 567

Observability, 173
Optimum aerodynamic shapes, 588
Optimum scheduling, 576
Optimum thrust nozzles, 588
Orientor fields, 325

Parallel computers, 423
Partial differential equations, 43
Penalty function methods, 320, 391
Periodic systems, 325
Perturbation methods, 136, 459

Quasilinearization methods, 152, 268, 285, 471

Rayleigh quotient, 512
Riccati transformation, 355
Roundoff errors, 1

Saddle points, 367
Search methods, 439, 497
Second-order systems, 408
Sequential gradient-restoration algorithm, 61, 471
Sequential minimization methods, 567
Shooting methods, 152
Simplex method, 1
Stability, 173

Steklov problem, 512
Stochastic control, 248
Stochastic problems, 53, 218, 248
Stochastic programming, 218
Stopping rules, 497
Structural design, 32
Sufficiency conditions, applications, 485

Time-optimal rendezvous, 242
Two-point boundary-value problems, 136, 152, 459

Author Index to Volume 12

Beamer, J. H., 439
Bertsekas, D. P., 218
Bhutani, O. P., 588
Breiter, M. C., 588

Casti, J., 423
Charrier, P., 256
Christensen, G. S., 576
Chyung, D. H., 242
Cliff, E. M., 485
Connor, M. A., 103
Cumberbatch, E., 408

Daniel, J. W., 233

El-Hawary, M. E., 576
Esterle, A., 471

Fuhrmann, P. A., 173

Golberg, M. A., 344
Graham, R. G., 268
Greenberg, H. J., 99
Guderley, K. G., 588

Hannsgen, K., 325
Hennig, G. R., 61
Huang, H. Y., 471

Kagiwada, H., 329
Kalaba, R., 329, 338
Kapur, K. C., 16
Kernevez, J. P., 43
Klosowicz, B., 32
Krée, P., 53

Larson, R., 423
Leondes, C. T., 268
Lurie, K. A., 32

Mårtensson, K., 531
Mataušek, M. R., 152
Maynard, C. W., 6
Miele, A., 61, 285
Milanese, M., 203

Nardizzi, L. R., 391
Negro, A., 182, 203

Oi, K., 447

Pliska, S. R., 248

Rader, T., 107
Raghavendra, V., 320
Rao, K. S. P., 320
Richardson, M., 423
Roberts, S. M., 136, 459
Rockafellar, R. T., 367, 555

Sanchez, D. A., 325
Sargent, R. W. H., 567
Sayama, H., 447
Scott, M. R., 6, 338, 355
Sebastian, D. J., 567
Shipman, J. S., 136, 459
Smith, R. L., 129
Stewart, N. F., 1
Stoddart, A. W. J., 563

© 1973 Plenum Publishing Corporation, 227 West 17th Street, New York, N.Y. 10011.

Tabak, D., 588
Takamatsu, T., 447
Tarng, M. Y., 391
Tietze, J. L., 285
Troesch, B. A., 512
Vincent, T. L., 485
Well, K. H., 285
Wilde, D. J., 439
Willman, W. W., 497

Printed in Belgium